

## Author Index

Page numbers in normal type refer to Volume 87; those in *italic type* refer to Volume 88

- Albaladejo, S., 287  
 Amano, T., 275  
 Andersen, A., 45  
 Andrieu, E., 191  
 Ansari, A. A., 135  
 Armanet, F., 63  
 Asher, J., 143  
 Atmani, H., 221, 247  
 Audisio, S., 29  
 Ayres, C. F., 135  
  
 Badan, B., 171  
 Bartlett, P. K. N., 163  
 Bavay, J. C., 137  
 Becquerelle, P., 137  
 Bennett, M. J., 37, 135, 143  
 Béranger, G., 63, 347  
 Bertrand, G., 81, 145  
 Billy, M., 53, 241  
 Bonnefois, B., 151  
 Boone, D. H., 111, 227, 349  
 Bourgain, P., 137  
 Briant, C. L., 348  
 Broc, M., 219  
  
 Caillet, M., 175, 127  
 Cannot, J. C., 81  
 Casteels, F., 169  
 Charles, J., 151  
 Chassagneux, E., 379  
 Choi, S.-H., 237  
 Choquet, P., 97  
 Christ, H. J., 119, 161  
 Christl, W., 119, 289  
 Ciosmak, D., 145  
 Colson, J. C., 11  
 Coquerelle, G., 151  
 Coutsouradis, D., 11  
  
 Davidson, J. H., 63  
 Davin, A., 11  
 Deb, P., 227  
 Debruyne, W., 169  
 Demeulenaere, R., 151  
 Depierre, Y., 287  
 Derop, J. L., 151  
 Dupoirson, F., 151  
 Duret, C., 337  
  
 El Majid, Z., 205  
  
 Fachinetti, J. L., 151  
 Fairbanks, J. W., 321  
 Fauvet, P., 219  
  
 Forseth, S., 61  
 Frances, M., 89  
 Fransen, T., 157  
 Fitzer, E., 349  
 Fryt, E. M., 347  
 Furuya, H., 211  
  
 Galerie, A., 175, 127  
 Garcia, E. A., 73  
 Gellings, P. J., 157  
 Gesmundo, F., 243  
 Giordano, L., 171  
 Godlewska, E., 183, 103  
 Godlewski, K., 183, 103  
 Goto, K. S., 347  
 Grabke, H. J., 23, 205  
 Gras, J. M., 47  
 Grimmer, H., 131, 189  
 Grman, D., 131, 189  
 Grunenwald, D., 151  
 Gruner, H., 349  
 Grünling, H. W., 177  
  
 Haflan, B., 45  
 Han, K. J., 347  
 Hancock, P., 303  
 Hashiura, K., 399  
 Hawes, R. W. M., 143  
 Hecht, R. J., 321  
 Heizmann, J. J., 145  
 Henon, J. P., 191  
 Herman, H., 69  
 Hersbach, H. J. C., 361  
 Hou, P. Y., 295  
 Hubert, M., 137  
 Huchtemann, B., 197  
 Huntz, A. M., 251, 213  
  
 Ilchner, B., 350  
 Indrigo, C., 97  
 Iniotakis, N., 189  
 Ishikawa, T., 51  
  
 Jedliński, J., 281  
 Jones, R. L., 353  
  
 Knights, C. F., 37  
 Kofstad, P., 45  
 Kosem, A., 29  
 Künecke, U., 161  
 Kvernes, I., 61  
  
 Ladoux, G., 331  
 Lallemant, M., 81  
  
 Lamberigts, M., 11  
 Lambertin, M., 205  
 Lang, E., 37  
 Langagne, J. P., 349  
 Larpin, J. P., 11, 81  
 Laruelle, C., 145  
 Latge, P., 287  
 Lattaud, L., 145  
 LeBlanc, O. H., 329  
 Lefebvre, H., 369  
 Lefort, A., 233  
 Lillerud, P. K., 45  
 Lloyd, D. M., 295  
 Luthra, K. L., 329, 348  
  
 MacAlpine, S., 81  
 Manesse, D., 21  
 Mansour-Gabr, M., 89  
 Marino, O., 75  
 Maruyama, T., 275  
 Mascolo, G., 75  
 Matteazzi, P., 171  
 Mazars, P., 21, 287  
 Mazille, H., 29  
 Meadowcroft, D. B., 313  
 Mevrel, R., 1, 97, 253  
 Meyer, K., 161  
 Mom, A. J. A., 361  
 Morbioli, R., 337  
 Mrowec, S., 183, 281  
  
 Nardou, F., 241  
 Narita, T., 51  
 Natesan, K., 99  
 Newman, L., 227  
 N'Gandu Muamba, J. M., 111  
 Nicoll, A. R., 349  
  
 Olivier, P., 219  
  
 Peters, J., 205  
 Petit, L., 383  
 Picard, G., 369  
 Pichoir, R., 1  
 Pieraggi, B., 199  
 Pittaway, A. J., 295  
 Polman, E. A., 157  
 Pons, M., 127  
 Pourbaix, M., 303  
 Price, J. B., 143  
 Przybylski, K., 125  
 Puig, T., 151  
  
 Quadackers, W. J., 107

- Raffailhac, J., 287  
Rahmel, A., 289, 345  
Ramanarayanan, T. A., 113  
Rameau, J. J., 383, 221, 247  
Ramous, E., 123  
Ranaivoniarivo, L., 241  
Rapp, R. A., 319  
Raynaud, P., 241  
Remmele, W., 349  
Restall, J. E., 273  
Rhys-Jones, T. N., 389  
Rogers, E. A., 295  
Rousselet, C., 145  
  
Saint-Paul, P., 369  
Saint Pierre, G. R., 347  
Saito, M., 211  
Saito, Y., 275  
Sannier, J., 219  
Saunders, S. R. J., 227, 135  
Savage, B., 137  
Savage, D. J., 143  
Schneider, K., 177  
Schüler, P., 197  
Schütze, M., 289  
Shankar, N. R., 69  
  
Shinata, Y., 399  
Silvestre, G., 233  
Singheiser, L., 177  
Sisson, R. D., 349  
Skalli, A., 175  
Smeggil, J. G., 261  
Smeltzer, W. W., 35  
Sockel, H. G., 119, 161  
Soustelle, M., 379  
Southwell, G., 81  
Spencer, S. J., 227  
Spiteri, P., 369  
Steen, W. M., 135  
Steinmetz, J., 89  
Steinmetz, P., 337, 89  
Stephenson, D. J., 273  
Stott, F. H., 267, 163  
Streiff, R., 111  
Stringer, J., 1, 237, 295  
Sugden, S., 143  
Sugisaki, M., 211  
Swindells, N., 389  
  
Tachikart, M., 63  
Takahashi, F., 399  
Tas, H., 169  
  
Thomas, G., 379  
Tiziani, A., 171  
Tremillon, B., 369  
Tuson, A. T., 135, 143  
  
Van de Voorde, M., 341  
Veys, J. M., 253  
Vilasi, M., 89  
Vogel, D., 227  
  
Wambach, K., 205  
Werber, T., 283  
Wilhelm, A. N., 73  
Williams, C. E., 353  
Wolf, I., 23  
Wood, G. C., 267, 163  
Wright, I. G., 261  
  
Young, D. J., 81  
Yurek, G. J., 125  
  
Zambon, A., 123  
Zhao, J. G., 213  
Zimmermann, U., 131, 189

## Subject Index

Page numbers in normal type refer to Volume 87; those in *italic type* refer to Volume 88

- Acoustic emission technique
  - application of the acoustic emission technique for the detection of oxide scale cracking during thermal cycling, 289
- Adherence
  - adherence of oxide scale formed on Ni-20Cr-1Si alloys with small additions of rare earth elements, 275
  - some comments on the role of yttrium in protective oxide scale adherence, 261
  - the phenomenon of adherence of a growing scale to the surface of a solid substance, 283
- Adhesion
  - growth and adhesion of oxide scales on  $Al_2O_3$ -forming alloys and coatings, 267
- Adhesive properties
  - adhesive properties of protective layers factors and measures, 347
- Aeronautic
  - mechanisms of hot corrosion of aluminised coatings, type Ni-Al, in aeronautic conditions, 337
- AISI 304H
  - sulfurization and carburization of the steel AISI 304H by hot gases in full catalytic cracking units, 151
- Alcalins
  - study of the corrosion of different steels in a molten nitrate-nitrite alcalins mixture, 369
- Alloys
  - a kinetic study of the relaxation of growth stress during oxidation of a Fe-Cr-Al alloy, 241
  - adherence of oxide scale formed on Ni-20Cr-1Si alloys with small additions of rare earth elements, 275
  - behaviour of  $Al_2O_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205
  - diffusional growth of multiphase scales and sub-scales on binary alloys: a review, 35
  - growth and adhesion of oxide scales on  $Al_2O_3$ -forming alloys and coatings, 267
  - high temperature corrosion of alloys and coatings in oil- and coal-fired boilers, 313
  - low temperature hot corrosion of Co-Cr-Al alloys, 329
  - high temperature corrosion of nickel and dilute nickel-based alloys in ( $SO_2$ - $O_2$ )  $SO_3$  mixtures, 45
  - high temperature corrosion of the nickel-based alloy Inconel 617 in helium containing small amounts of impurities, 161
  - mechanisms of scale-metal adhesion on M-Cr-Al-Y alloys, 348
  - metal and alloy fatigue at elevated temperatures, 350
  - on the formation of  $\eta'$  carbides during high temperature corrosion of three nickel-based alloys in nuclear process heat helium, 131
  - relation between the alloy composition and the lamellar morphology of the oxide scale, 81
  - simulation of oxidation phenomena during high temperature transients: application to zirconium alloys in steam, 73
  - study of the oxidation at 850 °C of the alloy Ni-Co-Cr-Al-Y-Ta cast and sprayed by a low pressure plasma spraying process, 89
  - sulphidation behaviour of  $\beta$ -NiAl- $\alpha$ -Cr pseudo-binary alloys, 183
  - sulphidation properties of chromium and chromium-containing alloys at high temperatures, 51
  - the breakaway corrosion of Fe-Cr alloys in atmospheres containing sulfur and oxygen, 237
  - the effect of surface-applied reactive metal oxides on the high temperature oxidation of alloys, 295
  - the influence of laser surface treatment on the high temperature oxidation of  $Cr_2O_3$ -forming alloys, 163
  - the interaction of carbon and sulfur with iron-base alloys in predominantly carburizing environments, 113
- Aluminide
  - high temperature oxidation of aluminide coatings, 205
  - the high temperature corrosion of a commercial aluminide coating on IN-738LC and MAR-M 002 at 700 and 830 °C, 389
- Aluminide coatings
  - elaboration of silicide and aluminide coatings by chemical vapour deposition or hot dipping: oxidation and sulphidation resistance of these coatings, 29
  - the effect of chromium on the corrosion resistance of aluminide coatings on nickel and nickel-based substrates, 103
  - the influence of hafnium in the substrate on the oxidation resistance of aluminide coatings on nickel-based superalloys, 111
- Aluminised coatings
  - mechanisms of hot corrosion of aluminised coatings, type Ni-Al, in aeronautic conditions, 337
  - resistance to wear and to the corrosion in liquid sodium of aluminised coatings on austenitic stainless steels, 287

## Aluminium

- hot corrosion of Co-Cr-Al-Y by molten sulfate-vanadate deposits, 353
- mechanisms of hot corrosion of aluminised coatings, type Ni-Al, in aeronautic conditions, 337
- a kinetic study of the relaxation of growth stress during oxidation of a Fe-Cr-Al alloy, 241
- behaviour of  $Al_2O_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205
- behaviour of metallic materials containing aluminium in an atmosphere containing sulphur and a little oxygen, 219
- effects of aluminium and silicon on the oxidation resistance of 13Cr-Ti ferritic stainless steel, 137
- influence of active elements on the oxidation mechanism of M-Cr-Al alloys, 251
- low temperature hot corrosion of Co-Cr-Al alloys, 329
- mechanisms of scale-metal adhesion on M-Cr-Al-Y alloys, 348
- microstructure of oxide scales formed on cyclically oxidized M-Cr-Al-Y coatings, 97
- oxidation-sulfidation behavior of nickel-base superalloys and M-Cr-Al coatings, 99
- oxidation-sulfidation of an Fe-25Cr-10Al alloy in  $H_2$ - $H_2O$ - $H_2S$  gas mixtures, 125
- study of the corrosion of Fe-Cr-Ni-Al alloys in different environments which simulate coal gasification atmospheres between 500-700 °C, 63
- study of the oxidation at 850 °C of the alloy Ni-Co-Cr-Al-Y-Ta cast and sprayed by a low pressure plasma spraying process, 89
- sulphidation behaviour of  $\beta$ -NiAl- $\alpha$ -Cr pseudo-binary alloys, 183
- the influence of implanted yttrium on the oxidation behaviour of  $\beta$ -NiAl, 281

## Aluminium oxide

- behaviour of  $Al_2O_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205
- growth and adhesion of oxide scales on Al- $O_3$ -forming alloys and coatings, 267

## Aluminosilicate refractories

- the action of heavy oil combustion products on aluminosilicate refractories, 75

## Austenitic stainless steels

- austenitic stainless steels in a corrosive atmosphere containing sulphur with a low  $O_2$  potential and containing carbon, behaviour in creep, 233
- laser stellite coatings on austenitic on stainless steels, 171
- resistance to wear and to the corrosion in liquid sodium of aluminised coatings on austenitic stainless steels, 287

## Binary alloys

- diffusional growth of multiphase scales and sub-scales on binary alloys: a review, 35

## Bolting material

- research on a protective coating for the bolting material of primary circuits of pressurized

water reactors against corrosion by concentrated boric acid, 47

## Boric acid

- research on a protective coating for the bolting material of primary circuits of pressurized water reactors against corrosion by concentrated boric acid, 47

## Calcium chloride

- corrosion under mechanical constraint in molten salts: experimental set-up: application to the corrosion of stainless steel AISI 304L in the molten medium NaCl-CaCl<sub>2</sub> at 570 °C, 221
- interaction between the creep electrochemical corrosion in molten salts: the case of a stainless steel AISI 304L in a molten NaCl-CaCl<sub>2</sub> mixture at 570 °C, 247

## Carbides

- on the formation of  $\eta'$  carbides during high temperature corrosion of three nickel-based alloys in nuclear process heat helium, 131

## Carbon

- the interaction of carbon and sulfur with iron-base alloys in predominantly carburizing environments, 113

## Carbon fibre-carbon matrix composites

- a review of oxidation kinetics of carbon fibre-carbon matrix composites at high temperature, 347

## Carburization

- carburization and oxidation, 23
- silicide coatings for carburization protection, 81
- sulfurization and carburization of the steel AISI 304H by hot gases in full catalytic cracking units, 151
- the effectiveness of vapour-deposited  $SiO_2$  coatings in preventing carburization of Incoloy 800H, 37

## Carburizing

- behaviour of  $Al_2O_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205
- the interaction of carbon and sulfur with iron-base alloys in predominantly carburizing environments, 113

## Ceramics

- behaviour of ceramics in oxidizing atmospheres, 53

## Ceramic coatings

- corrosion mechanisms of ceramic coatings in diesel engines, 61

## Chemical vapour deposition

- elaboration of silicide and aluminide coatings by chemical vapour deposition or hot dipping: oxidation and sulphidation resistance of these coatings, 29

## Chemistry

- chemistry and electrochemistry of hot corrosion of metals, 319

## Chromium

- a kinetic study of the relaxation of growth stress during oxidation of a Fe-Cr-Al alloy, 241
- adherence of oxide scale formed on Ni-20Cr-1Si alloys with small additions of rare earth elements, 275

- behaviour of the alloy Fe-2,25Cr-1Mo in oxidizing and/or sulfurizing atmospheres, 175
- effects of aluminium and silicon on the oxidation resistance of 13Cr-Ti ferritic stainless steel, 137
- gas-metal reactions of a new Fe-Ni-Cr-W alloy in helium with reactive components and in an  $H_2$ -CH<sub>4</sub>-H<sub>2</sub>S atmosphere in the temperature range 700-950 °C, 197
- hot corrosion of Co-Cr-Al-Y by molten sulfate-vanadate deposits, 353
- influence of active elements on the oxidation mechanism of M-Cr-Al alloys, 251
- low temperature hot corrosion of Co-Cr-Al alloys, 329
- mechanisms of scale-metal adhesion on M-Cr-Al-Y alloys, 348
- microstructure of oxide scales formed on cyclically oxidized M-Cr-Al-Y coatings, 97
- oxidation-sulfidation behavior of nickel-base superalloys and M-Cr-Al coatings, 99
- oxidation-sulfidation of an Fe-25Cr-10Al alloy in H<sub>2</sub>-H<sub>2</sub>O-H<sub>2</sub>S gas mixtures, 125
- study of the corrosion of Fe-Cr-Ni-Al alloys in different environments which simulate coal gasification atmospheres between 500-700 °C, 63
- study of the oxidation at 850 °C of the alloy Ni-Co-Cr-Al-Y-Ta cast and sprayed by a low pressure plasma spraying process, 89
- sulphidation behaviour of  $\beta$ -NiAl- $\alpha$ -Cr pseudo-binary alloys, 183
- sulphidation properties of chromium and chromium-containing alloys at high temperatures, 51
- the breakaway corrosion of Fe-Cr alloys in atmospheres containing sulfur and oxygen, 237
- the effect of chromium on the corrosion resistance of aluminide coatings on nickel and nickel-based substrates, 103
- Chromium-containing alloys
  - sulphidation properties of chromium and chromium-containing alloys at high temperatures, 51
- Chromium oxide-forming alloys
  - the influence of laser surface treatment on the high temperature oxidation of Cr<sub>2</sub>O<sub>3</sub>-forming alloys, 163
- CMSX-2
  - influence of protective coatings on the mechanical properties of CMSX-2 and Cotac 784, 253
- Coal combustion
  - high temperature erosion in coal combustion and conversion processes: a review, 261
- Coal-fired boilers
  - high temperature corrosion of alloys and coatings in oil- and coal-fired boilers, 313
- Coal gasification
  - study of the corrosion of Fe-Cr-Ni-Al alloys in different environments which simulate coal gasification atmospheres between 500-700 °C, 63
- Coal gasification plants
  - corrosion of materials in an environment typical of coal gasification plants, 169
- Coated superalloys
  - high temperature erosion of coated superalloys for gas turbines, 273
- Coated systems
  - mechanical properties of coated systems, 177
- Coatings
  - coatings by diffusion, 1
  - corrosion mechanisms of ceramic coatings in diesel engines, 61
  - diffusion phenomena in coatings for high temperature service, 123
  - ductile-to-brittle transition temperature behaviour of platinum-modified coatings, 227
  - elaboration of silicide and aluminide coatings by chemical vapour deposition or hot dipping: oxidation and sulphidation resistance of these coatings, 29
  - growth and adhesion of oxide scales on Al<sub>2</sub>O<sub>3</sub>-forming alloys and coatings, 267
  - high temperature corrosion of alloys and coatings in oil- and coal-fired boilers, 313
  - high temperature oxidation of aluminide coatings, 205
  - influence of protective coatings on the mechanical properties of CMSX-2 and Cotac 784, 253
  - laser stellite coatings on austenitic on stainless steels, 171
  - microstructure of oxide scales formed on cyclically oxidized M-Cr-Al-Y coatings, 97
  - performance of high temperature coatings on F100 turbine blades under simulated service conditions, 361
  - research on a protective coating for the bolting material of primary circuits of pressurized water reactors against corrosion by concentrated boric acid, 47
  - resistance to wear and to the corrosion in liquid sodium of aluminised coatings on austenitic stainless steels, 287
  - role of coatings in energy-producing systems: an overview, 1
  - silicide coatings for carburization protection, 81
  - silicide and modified silicide coatings for high temperature applications, 349
  - survivability of thermal barrier coatings, 69
  - the durability and performance of coatings in gas turbine and diesel engines, 321
  - the effect of chromium on the corrosion resistance of aluminide coatings on nickel and nickel-based substrates, 103
  - the effectiveness of vapour-deposited SiO<sub>2</sub> coatings in preventing carburization of Incoloy 800H, 37
  - the high temperature corrosion of a commercial aluminide coating on IN-738LC and MAR-M 002 at 700 and 830 °C, 389
  - the influence of hafnium in the substrate on the oxidation resistance of aluminide coatings on nickel-based superalloys, 111
  - the role of microstructure in the high temperature oxidation resistance of coatings, 349
- Coating compositions
  - coating compositions and microstructures in gas turbine applications, 349



**Coating quality**

equipment performance and coating quality in modern vacuum plasma spraying (VPS), 349

**Cobalt**

cobalt-based superalloys for applications in gas turbines, 11

hot corrosion of Co-Cr-Al-Y by molten sulfate-vanadate deposits, 353

low temperature hot corrosion of Co-Cr-Al alloys, 329

study of the oxidation at 850 °C of the alloy Ni-Co-Cr-Al-Y-Ta cast and sprayed by a low pressure plasma spraying process, 89

**Combustion**

the action of heavy oil combustion products on aluminosilicate refractories, 75

**Conversion**

high temperature erosion in coal combustion and conversion processes: a review, 261

**Corrosion**

chemistry and electrochemistry of hot corrosion of metals, 319

corrosion behaviour of Incoloy 800 and Nimonic 75 in prototype nuclear process helium and in wet helium under special flow conditions, 189

corrosion by molten mixtures of  $\text{NaCo}_3\text{-N}_2\text{S-Na}_2\text{SO}_4\text{-NaCl}$ : applications to the materials of Kraft recovery boilers, 383

corrosion mechanisms of ceramic coatings in diesel engines, 61

corrosion of materials in an environment typical of coal gasification plants, 169

corrosion protection by vapour-deposited and laser-fused  $\text{SiO}_2$  coatings, 135

corrosion under mechanical constraint in molten salts: experimental set-up: application to the corrosion of stainless steel AISI 304L in the molten medium  $\text{NaCl-CaCl}_2$  at 570 °C, 221

electrochemical aspects of molten-salt-enhanced corrosion, 345

high temperature corrosion in the service environments of a nuclear process heat plant, 107

high temperature corrosion of alloys and coatings in oil- and coal-fired boilers, 313

high temperature sulphide corrosion of manganese and Mn-Nb alloys, 89

hot corrosion of Co-Cr-Al-Y by molten sulfate-vanadate deposits, 353

low temperature hot corrosion of Co-Cr-Al alloys, 329

mechanisms of hot corrosion of aluminised coatings, type Ni-Al, in aeronautic conditions, 337

research on a protective coating for the bolting material of primary circuits of pressurized water reactors against corrosion by concentrated boric acid, 47

resistance to wear and to the corrosion in liquid sodium of aluminised coatings on austenitic stainless steels, 287

NaCl-induced hot corrosion of stainless steels, 399

study of the corrosion of different steels in a molten nitrate-nitrite alkaline mixture, 369

the breakaway corrosion of Fe-Cr alloys in atmospheres containing sulfur and oxygen, 237

the effect of chromium on the corrosion resistance of aluminide coatings on nickel and nickel-based substrates, 103

the high temperature corrosion of a commercial aluminide coating on IN-738LC and MAR-M 002 at 700 and 830 °C, 389

20 years of practical experience on the behaviour of superalloys to corrosion and their protection in hot components of industrial gas turbines, 331

various aspects of high temperature corrosion in aggressive atmospheres containing sulphur, oxygen or both, 11

**Corrosion layers**

certain textures in corrosion layers in relation to their stratification, 145

**Corrosion-resistant materials**

current high temperature corrosion-resistant materials and a personal view of their future prospects, 303

**Corrosive**

austenitic stainless steels in a corrosive atmosphere containing sulphur with a low  $\text{O}_2$  potential and containing carbon, behaviour in creep, 233

**Cotac 784**

influence of protective coatings on the mechanical properties of CMSX-2 and Cotac 784, 253

**Cracking**

application of the acoustic emission technique for the detection of oxide scale cracking during thermal cycling, 289

**Creep**

austenitic stainless steels in a corrosive atmosphere containing sulphur with a low  $\text{O}_2$  potential and containing carbon, behaviour in creep, 233

behaviour of  $\text{Al}_2\text{O}_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205

effect of creep or low cycle fatigue on the oxidation or hot corrosion behaviour of nickel-base superalloys, 199

interaction between the creep electrochemical corrosion in molten salts: the case of a stainless steel AISI 304L in a molten  $\text{NaCl-CaCl}_2$  mixture at 570 °C, 247

**Curvature method**

determination of the oxidation stress distribution in a duplex oxide-metallic substrate system by a curvature method, 213

**Cyclically oxidized M-Cr-Al-Y coatings**

microstructure of oxide scales formed on cyclically oxidized M-Cr-Al-Y coatings, 97

**Defect mobility**

sulphidation of iron: the effect of surface reaction and defect mobility in FeS on the kinetics of iron sulphidation, 347

**Diesel engines**

corrosion mechanisms of ceramic coatings in diesel engines, 61

the durability and performance of coatings in gas turbine and diesel engines, 321

**Diffusional**

diffusional growth of multiphase scales and subscales on binary alloys: a review, 35

**Diffusion**

coatings by diffusion, 1  
diffusion phenomena in coatings for high temperature service, 123

**Distribution**

distribution of the powder in a plasma jet under partial pressure, 21

**Ductile-to-brittle**

ductile-to-brittle transition temperature behaviour of platinum-modified coatings, 227

**Duplex oxide-metallic substrate**

determination of the oxidation stress distribution in a duplex oxide-metallic substrate system by a curvature method, 213

**Durability**

the durability and performance of coatings in gas turbine and diesel engines, 321

**Electrochemical corrosion**

interaction between the creep electrochemical corrosion in molten salts: the case of a stainless steel AISI 304L in a molten NaCl-CaCl<sub>2</sub> mixture at 570 °C, 247

**Electrochemistry**

chemistry and electrochemistry of hot corrosion of metals, 319

**Electrochemical**

electrochemical aspects of molten-salt-enhanced corrosion, 345

**Embrittlement**

effect of the environment on the high temperature embrittlement of Inconel 718, 191

**Erosion**

high temperature erosion in coal combustion and conversion processes: a review, 261  
high temperature erosion of coated superalloys for gas turbines, 273

**Experimental set-up**

corrosion under mechanical constraint in molten salts: experimental set-up: application to the corrosion of stainless steel AISI 304L in the molten medium NaCl-CaCl<sub>2</sub> at 570 °C, 221

**Fast breeder reactor fuel cladding**

simultaneous oxidation and tellurization of SUS-316 stainless steel for fast breeder reactor fuel cladding, 211

**Fatigue**

metal and alloy fatigue at elevated temperatures, 350

**Ferritic**

effects of aluminium and silicon on the oxidation resistance of 13Cr-Ti ferritic stainless steel, 137

**Fluidized-bed combustor**

deposit-induced sulphidation of fluidized-bed combustor heat exchangers, 227  
metal wastage in fluidized-bed combustors, 295

**Full catalytic cracking units**

sulfurization and carburization of the steel AISI 304H by hot gases in full catalytic cracking units, 151

**Gas**

gas-metal reactions of a new Fe-Ni-Cr-W alloy in helium with reactive components and in an H<sub>2</sub>-CH<sub>4</sub>-H<sub>2</sub>S atmosphere in the temperature range 700-950 °C, 197

**Gas turbines**

cobalt-based superalloys for applications in gas turbines, 11  
coating compositions and microstructures in gas turbine applications, 349  
high temperature erosion of coated superalloys for gas turbines, 273  
the durability and performance of coatings in gas turbine and diesel engines, 321

**Growing scale**

the phenomenon of adherence of a growing scale to the surface of a solid substance, 283

**Growth**

growth and adhesion of oxide scales on Al<sub>2</sub>O<sub>3</sub>-forming alloys and coatings, 267

**Growth stresses**

a kinetic study of the relaxation of growth stress during oxidation of a Fe-Cr-Al alloy, 241

**Hafnium**

the influence of hafnium in the substrate on the oxidation resistance of aluminide coatings on nickel-based superalloys, 111

**Heavy oil combustion**

the action of heavy oil combustion products on aluminosilicate refractories, 75

**Helium**

high temperature corrosion of the nickel-based alloy Inconel 617 in helium containing small amounts of impurities, 161

**High temperature**

a review of oxidation kinetics of carbon fibre-carbon matrix composites at high temperature, 347  
diffusion phenomena in coatings for high temperature service, 123  
effect of the environment on the high temperature embrittlement of Inconel 718, 191  
high temperature erosion in coal combustion and conversion processes: a review, 261  
high temperature erosion of coated superalloys for gas turbines, 273  
silicide and modified silicide coatings for high temperature applications, 349  
simulation of oxidation phenomena during high temperature transients: application to zirconium alloys in steam, 73  
sulphidation properties of chromium and chromium-containing alloys at high temperatures, 51  
thin layer activation: a technique for monitoring material loss during high temperature surface degradation processes, 143

**High temperature coatings**

performance of high temperature coatings on F100 turbine blades under simulated service conditions, 361

**High temperature corrosion**

high temperature corrosion in the service environments of a nuclear process heat plant, 107

- high temperature corrosion of alloys and coatings in oil- and coal-fired boilers, 313
- high temperature corrosion of nickel and dilute nickel-based alloys in ( $\text{SO}_2\text{-O}_2$ )  $\text{SO}_3$  mixtures, 45
- high temperature corrosion of the nickel-based alloy Inconel 617 in helium containing small amounts of impurities, 161
- on the formation of  $\eta'$  carbides during high temperature corrosion of three nickel-based alloys in nuclear process heat helium, 131
- the high temperature corrosion of a commercial aluminide coating on IN-738LC and MAR-M 002 at 700 and 830 °C, 389
- various aspects of high temperature corrosion in aggressive atmospheres containing sulphur, oxygen or both, 11
- thermomechanical diagrams: some applications to the study of high temperature corrosion, 303
- High temperature corrosion-resistant materials
  - current high temperature corrosion-resistant materials and a personal view of their future prospects, 303
- High temperature materials
  - environmental effect on the damage of high temperature materials, 341
- High temperature oxidation
  - high temperature oxidation of aluminide coatings, 205
  - the effect of surface-applied reactive metal oxides on the high temperature oxidation of alloys, 295
  - the influence of laser surface treatment on the high temperature oxidation of  $\text{Cr}_2\text{O}_3$ -forming alloys, 163
- High temperature oxidation resistance
  - the role of microstructure in the high temperature oxidation resistance of coatings, 349
- High temperature sulphide corrosion
  - high temperature sulphide corrosion of manganese and Mn-Nb alloys, 89
- Hot components
  - 20 years of practical experience on the behaviour of superalloys to corrosion and their protection in hot components of industrial gas turbines, 331
- Hot corrosion
  - chemistry and electrochemistry of hot corrosion of metals, 319
  - effect of creep or low cycle fatigue on the oxidation or hot corrosion behaviour of nickel-base superalloys, 199
  - hot corrosion of Co-Cr-Al-Y by molten sulfate-vanadate deposits, 353
  - mechanisms of hot corrosion of aluminised coatings, type Ni-Al, in aeronautic conditions, 337
  - NaCl-induced hot corrosion of stainless steels, 399
- Hot dipping
  - elaboration of silicide and aluminide coatings by chemical vapour deposition or hot dipping: oxidation and sulphidation resistance of these coatings, 29
- Hot gases
  - sulfurization and carburization of the steel AISI 304H by hot gases in full catalytic cracking units, 151
- Hydrogen
  - gas-metal reactions of a new Fe-Ni-Cr-W alloy in helium with reactive components and in an  $\text{H}_2\text{-CH}_4\text{-H}_2\text{S}$  atmosphere in the temperature range 700-950 °C, 197
  - oxidation-sulfidation of an Fe-25Cr-10Al alloy in  $\text{H}_2\text{-H}_2\text{O-H}_2\text{S}$  gas mixtures, 125
- Hydrogen sulphide
  - gas-metal reactions of a new Fe-Ni-Cr-W alloy in helium with reactive components and in an  $\text{H}_2\text{-CH}_4\text{-H}_2\text{S}$  atmosphere in the temperature range 700-950 °C, 197
  - oxidation-sulfidation of an Fe-25Cr-10Al alloy in  $\text{H}_2\text{-H}_2\text{O-H}_2\text{S}$  gas mixtures, 125
- IN-738LC
  - the high temperature corrosion of a commercial aluminide coating on IN-738LC and MAR-M 002 at 700 and 830 °C, 389
- Incoloy 800
  - corrosion behaviour of Incoloy 800 and Nimonic 75 in prototype nuclear process helium and in wet helium under special flow conditions, 189
- Incoloy 800H
  - the effectiveness of vapour-deposited  $\text{SiO}_2$  coatings in preventing carburization of Incoloy 800H, 37
  - the sulphidation properties of pre-oxidized yttrium-ion-implanted Incoloy 800H, 157
- Inconel 617
  - high temperature corrosion of the nickel-based alloy Inconel 617 in helium containing small amounts of impurities, 161
- Inconel 718
  - effect of the environment on the high temperature embrittlement of Inconel 718, 191
- Industrial gas turbines
  - 20 years of practical experience on the behaviour of superalloys to corrosion and their protection in hot components of industrial gas turbines, 331
- Internal precipitation
  - penetration of foreign elements connected with internal precipitation: a computer-based description and first experimental verification, 119
- Iron
  - a kinetic study of the relaxation of growth stress during oxidation of a Fe-Cr-Al alloy, 241
  - behaviour of  $\text{Al}_2\text{-O}_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205
  - behaviour of the alloy Fe-2,25Cr-1Mo in oxidizing and/or sulfurizing atmospheres, 175
  - gas-metal reactions of a new Fe-Ni-Cr-W alloy in helium with reactive components and in an  $\text{H}_2\text{-CH}_4\text{-H}_2\text{S}$  atmosphere in the temperature range 700-950 °C, 197
  - oxidation-sulfidation of an Fe-25Cr-10Al alloy in  $\text{H}_2\text{-H}_2\text{O-H}_2\text{S}$  gas mixtures, 125
  - study of the corrosion of Fe-Cr-Ni-Al alloys in different environments which simulate coal gasification atmospheres between 500-700 °C, 63



- sulphidation of iron: the effect of surface reaction and defect mobility in FeS on the kinetics of iron sulphidation, 347
- the breakaway corrosion of Fe-Cr alloys in atmospheres containing sulfur and oxygen, 237
- the interaction of carbon and sulfur with iron-base alloys in predominantly carburizing environments, 113
- Iron sulphidation**
  - sulphidation of iron: the effect of surface reaction and defect mobility in FeS on the kinetics of iron sulphidation, 347
- Iron sulphide**
  - sulphidation of iron: the effect of surface reaction and defect mobility in FeS on the kinetics of iron sulphidation, 347
- Kinetic**
  - a kinetic study of the relaxation of growth stress during oxidation of a Fe-Cr-Al alloy, 241
  - sulphidation of iron: the effect of surface reaction and defect mobility in FeS on the kinetics of iron sulphidation, 347
- Kraft recovery boilers**
  - corrosion by molten mixtures of  $\text{NaCo}_3\text{-N}_2\text{S-Na}_2\text{SO}_4\text{-NaCl}$ : applications to the materials of Kraft recovery boilers, 383
- Lamellar morphology**
  - relation between the alloy composition and the lamellar morphology of the oxide scale, 81
- Laser-fused silicon oxide coatings**
  - corrosion protection by vapour-deposited and laser-fused  $\text{SiO}_2$  coatings, 135
- Laser irradiation**
  - elaboration of surface alloys under laser irradiation, 127
- Laser stellite coatings**
  - laser stellite coatings on austenitic on stainless steels, 171
- Laser surface**
  - the influence of laser surface treatment on the high temperature oxidation of  $\text{Cr}_2\text{O}_3$ -forming alloys, 163
- Laser treatment**
  - laser treatment of the surface of Nimonic 80A, 157
- Layers**
  - certain textures in corrosion layers in relation to their stratification, 145
- Liquid sodium**
  - resistance to wear and to the corrosion in liquid sodium of aluminised coatings on austenitic stainless steels, 287
- Low cycle fatigue**
  - effect of creep or low cycle fatigue on the oxidation or hot corrosion behaviour of nickel-base superalloys, 199
- Low pressure plasma spraying process**
  - study of the oxidation at 850 °C of the alloy Ni-Co-Cr-Al-Y-Ta cast and sprayed by a low pressure plasma spraying process, 89
- Low temperature hot corrosion**
  - low temperature hot corrosion of Co-Cr-Al alloys, 329
- MAR-M 002**
  - the high temperature corrosion of a commercial aluminide coating on IN-738LC and MAR-M 002 at 700 and 830 °C, 389
- Manganese**
  - high temperature sulphide corrosion of manganese and Mn-Nb alloys, 89
- Manganese-niobium alloys**
  - high temperature sulphide corrosion of manganese and Mn-Nb alloys, 89
- Materials**
  - behaviour of metallic materials containing aluminium in an atmosphere containing sulphur and a little oxygen, 219
- Mechanical constraint**
  - corrosion under mechanical constraint in molten salts: experimental set-up: application to the corrosion of stainless steel AISI 304L in the molten medium  $\text{NaCl-CaCl}_2$  at 570 °C, 221
- Mechanical properties**
  - influence of protective coatings on the mechanical properties of CMSX-2 and Cotac 784, 253
  - mechanical properties of coated systems, 177
- Metals**
  - chemistry and electrochemistry of hot corrosion of metals, 319
  - gas-metal reactions of a new Fe-Ni-Cr-W alloy in helium with reactive components and in an  $\text{H}_2\text{-CH}_4\text{-H}_2\text{S}$  atmosphere in the temperature range 700-950 °C, 197
  - metal and alloy fatigue at elevated temperatures, 350
  - microstructure of oxide scales formed on cyclically oxidized M-Cr-Al-Y coatings, 97
- Metal oxides**
  - the effect of surface-applied reactive metal oxides on the high temperature oxidation of alloys, 295
- Metal wastage**
  - metal wastage in fluidized-bed combustors, 295
- Methane**
  - gas-metal reactions of a new Fe-Ni-Cr-W alloy in helium with reactive components and in an  $\text{H}_2\text{-CH}_4\text{-H}_2\text{S}$  atmosphere in the temperature range 700-950 °C, 197
- Microstructures**
  - coating compositions and microstructures in gas turbine applications, 349
  - microstructure of oxide scales formed on cyclically oxidized M-Cr-Al-Y coatings, 97
  - the role of microstructure in the high temperature oxidation resistance of coatings, 349
- Modified silicide coatings**
  - silicide and modified silicide coatings for high temperature applications, 349
- Molten**
  - study of the corrosion of different steels in a molten nitrate-nitrite alkaline mixture, 369
- Molten-salt-enhanced corrosion**
  - electrochemical aspects of molten-salt-enhanced corrosion, 345
- Molybdenum**
  - behaviour of the alloy Fe-2,25Cr-1Mo in oxidizing and/or sulfurizing atmospheres, 175

# Multiphase scales

diffusional growth of multiphase scales and sub-scales on binary alloys: a review, 35

# Nickel

- adherence of oxide scale formed on Ni-20Cr-1Si alloys with small additions of rare earth elements, 275
- behaviour of  $Al_2O_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205
- corrosion of nickel by  $V_2O_5$ : critical phenomenon due to  $O_2$  pressure, 379
- gas-metal reactions of a new Fe-Ni-Cr-W alloy in helium with reactive components and in an  $H_2$ - $CH_4$ - $H_2S$  atmosphere in the temperature range 700-950 °C, 197
- high temperature corrosion of nickel and dilute nickel-based alloys in ( $SO_2$ - $O_2$ )  $SO_3$  mixtures, 45
- high temperature corrosion of the nickel-based alloy Inconel 617 in helium containing small amounts of impurities, 161
- mechanisms of hot corrosion of aluminised coatings, type Ni-Al, in aeronautic conditions, 337
- on the formation of  $\eta'$  carbides during high temperature corrosion of three nickel-based alloys in nuclear process heat helium, 131
- oxidation-sulfidation behavior of nickel-base superalloys and M-Cr-Al coatings, 99
- study of the corrosion of Fe-Cr-Ni-Al alloys in different environments which simulate coal gasification atmospheres between 500-700 °C, 63
- study of the oxidation at 850 °C of the alloy Ni-Co-Cr-Al-Y-Ta cast and sprayed by a low pressure plasma spraying process, 89
- sulphidation behaviour of  $\beta$ -NiAl- $\alpha$ -Cr pseudo-binary alloys, 183
- the effect of chromium on the corrosion resistance of aluminide coatings on nickel and nickel-based substrates, 103
- the influence of implanted yttrium on the oxidation behaviour of  $\beta$ -NiAl, 281

# Nickel-based alloys

- high temperature corrosion of nickel and dilute nickel-based alloys in ( $SO_2$ - $O_2$ )  $SO_3$  mixtures, 45

# Nickel-base superalloys

- effect of creep or low cycle fatigue on the oxidation or hot corrosion behaviour of nickel-base superalloys, 199
- the influence of hafnium in the substrate on the oxidation resistance of aluminide coatings on nickel-based superalloys, 111

# Nimonic 75

- corrosion behaviour of Incoloy 800 and Nimonic 75 in prototype nuclear process helium and in wet helium under special flow condition, 189

# Nimonic 80A

- laser treatment of the surface of Nimonic 80A, 157

# Niobium

- behaviour of  $Al_2O_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb

and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205

high temperature sulphide corrosion of manganese and Mn-Nb alloys, 89

# Nitrate

- study of the corrosion of different steels in a molten nitrate-nitrite alkaline mixture, 369

# Nitrite

- study of the corrosion of different steels in a molten nitrate-nitrite alkaline mixture, 369

# Nuclear process heat helium

- on the formation of  $\eta'$  carbides during high temperature corrosion of three nickel-based alloys in nuclear process heat helium, 131

# Nuclear process heat plant

- high temperature corrosion in the service environments of a nuclear process heat plant, 107

# Nuclear process helium

- corrosion behaviour of Incoloy 800 and Nimonic 75 in prototype nuclear process helium and in wet helium under special flow conditions, 189

# Oil- and coal-fired boilers

- high temperature corrosion of alloys and coatings in oil- and coal-fired boilers, 313

# Oxidation

- a kinetic study of the relaxation of growth stress during oxidation of a Fe-Cr-Al alloy, 241
- carburization and oxidation, 23
- determination of the oxidation stress distribution in a duplex oxide-metallic substrate system by a curvature method, 213
- effect of creep or low cycle fatigue on the oxidation or hot corrosion behaviour of nickel-base superalloys, 199
- effects of aluminium and silicon on the oxidation resistance of 13Cr-Ti ferritic stainless steel, 137
- elaboration of silicide and aluminide coatings by chemical vapour deposition or hot dipping: oxidation and sulphidation resistance of these coatings, 29
- high temperature oxidation of aluminide coatings, 205
- influence of active elements on the oxidation mechanism of M-Cr-Al alloys, 251
- oxidation-sulfidation behavior of nickel-base superalloys and M-Cr-Al coatings, 99
- oxidation-sulfidation of an Fe-25Cr-10Al alloy in  $H_2$ - $H_2O$ - $H_2S$  gas mixtures, 125
- simulation of oxidation phenomena during high temperature transients: application to zirconium alloys in steam, 73
- simultaneous oxidation and tellurization of SUS-316 stainless steel for fast breeder reactor fuel cladding, 211
- study of the oxidation at 850 °C of the alloy Ni-Co-Cr-Al-Y-Ta cast and sprayed by a low pressure plasma spraying process, 89
- the influence of implanted yttrium on the oxidation behaviour of  $\beta$ -NiAl, 281
- the role of point defects in oxide scales in oxidation behaviour: a review, 243

**Oxidation kinetics**

- a review of oxidation kinetics of carbon fibre-carbon matrix composites at high temperature, 347

**Oxidation resistance**

- the influence of hafnium in the substrate on the oxidation resistance of aluminide coatings on nickel-based superalloys, 111
- the role of microstructure in the high temperature oxidation resistance of coatings, 349

**Oxide scale**

- adherence of oxide scale formed on Ni-20Cr-1Si alloys with small additions of rare earth elements, 275
- application of the acoustic emission technique for the detection of oxide scale cracking during thermal cycling, 289
- growth and adhesion of oxide scales on  $Al_2O_3$ -forming alloys and coatings, 267
- microstructure of oxide scales formed on cyclically oxidized M-Cr-Al-Y coatings, 97
- some comments on the role of yttrium in protective oxide scale adherence, 261
- the role of point defects in oxide scales in oxidation behaviour: a review, 243

**Oxidizing**

- behaviour of  $Al_2O_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205
- behaviour of the alloy Fe-2.25Cr-1Mo in oxidizing and/or sulfurizing atmospheres, 175

**Oxidizing atmospheres**

- behaviour of ceramics in oxidizing atmospheres, 53

**Oxygen**

- behaviour of metallic materials containing aluminium in an atmosphere containing sulphur and a little oxygen, 219
- corrosion of nickel by  $V_2O_5$ : critical phenomenon due to  $O_2$  pressure, 379
- high temperature corrosion of nickel and dilute nickel-based alloys in ( $SO_2$ - $O_2$ )  $SO_3$  mixtures, 45
- the breakaway corrosion of Fe-Cr alloys in atmospheres containing sulfur and oxygen, 237
- various aspects of high temperature corrosion in aggressive atmospheres containing sulphur, oxygen or both, 11

**Partial pressure**

- distribution of the powder in a plasma jet under partial pressure, 21

**Performance**

- equipment performance and coating quality in modern vacuum plasma spraying (VPS), 349

**Plasma jet**

- distribution of the powder in a plasma jet under partial pressure, 21

**Platinum-modified coatings**

- ductile-to-brittle transition temperature behaviour of platinum-modified coatings, 227

**Points defects**

- the role of point defects in oxide scales in oxidation behaviour: a review, 243

**Powder**

- distribution of the powder in a plasma jet under partial pressure, 21

**Pressurized water reactors**

- research on a protective coating for the bolting material of primary circuits of pressurized water reactors against corrosion by concentrated boric acid, 47

**Primary circuits**

- research on a protective coating for the bolting material of primary circuits of pressurized water reactors against corrosion by concentrated boric acid, 47

**Protective coatings**

- influence of protective coatings on the mechanical properties of CMSX-2 and Cotac 784, 253

**Protective layers**

- adhesive properties of protective layers factors and measures, 347

**Pseudobinary alloys**

- sulphidation behaviour of  $\beta$ -NiAl- $\alpha$ -Cr pseudobinary alloys, 183

**Rare earth elements**

- adherence of oxide scale formed on Ni-20Cr-1Si alloys with small additions of rare earth elements, 275

**Relaxation**

- a kinetic study of the relaxation of growth stress during oxidation of a Fe-Cr-Al alloy, 241

**Resistance**

- resistance to wear and to the corrosion in liquid sodium of aluminised coatings on austenitic stainless steels, 287

**Scale-metal adhesion**

- mechanisms of scale-metal adhesion on M-Cr-Al-Y alloys, 348

**Silicide**

- elaboration of silicide and aluminide coatings by chemical vapour deposition or hot dipping: oxidation and sulphidation resistance of these coatings, 29
- silicide and modified silicide coatings for high temperature applications, 349

**Silicide coatings**

- silicide coatings for carburization protection, 81

**Silicon**

- adherence of oxide scale formed on Ni-20Cr-1Si alloys with small additions of rare earth elements, 275
- effects of aluminium and silicon on the oxidation resistance of 13Cr-Ti ferritic stainless steel, 137

**Silicon oxide coatings**

- corrosion protection by vapour-deposited and laser-fused  $SiO_2$  coatings, 135

**Sodium chloride**

- corrosion under mechanical constraint in molten salts: experimental set-up: application to the corrosion of stainless steel AISI 304L in the molten medium NaCl- $CaCl_2$  at 570 °C, 221
- interaction between the creep electrochemical corrosion in molten salts: the case of a stainless steel AISI 304L in a molten NaCl- $CaCl_2$  mixture at 570 °C, 247

- NaCl-induced hot corrosion of stainless steels, 399
- Spraying process  
study of the oxidation at 850 °C of the alloy Ni-Co-Cr-Al-Y-Ta cast and sprayed by a low pressure plasma spraying process, 89
- Stainless steel  
effects of aluminium and silicon on the oxidation resistance of 13Cr-Ti ferritic stainless steel, 137  
NaCl-induced hot corrosion of stainless steels, 399
- Stainless steel AISI 304L  
corrosion under mechanical constraint in molten salts: experimental set-up: application to the corrosion of stainless steel AISI 304L in the molten medium NaCl-CaCl<sub>2</sub> at 570 °C, 221  
interaction between the creep electrochemical corrosion in molten salts: the case of a stainless steel AISI 304L in a molten NaCl-CaCl<sub>2</sub> mixture at 570 °C, 247
- Steels  
austenitic stainless steels in a corrosive atmosphere containing sulphur with a low O<sub>2</sub> potential and containing carbon, behaviour in creep, 233  
effects of aluminium and silicon on the oxidation resistance of 13Cr-Ti ferritic stainless steel, 137  
interaction between the creep electrochemical corrosion in molten salts: the case of a stainless steel AISI 304L in a molten NaCl-CaCl<sub>2</sub> mixture at 570 °C, 247  
laser stellite coatings on austenitic on stainless steels, 171  
resistance to wear and to the corrosion in liquid sodium of aluminised coatings on austenitic stainless steels, 287  
simultaneous oxidation and tellurization of SUS-316 stainless steel for fast breeder reactor fuel cladding, 211  
NaCl-induced hot corrosion of stainless steels, 399  
study of the corrosion of different steels in a molten nitrate-nitrite alkaline mixture, 369  
sulfurization and carburization of the steel AISI 304H by hot gases in full catalytic cracking units, 151
- Stratification  
certain textures in corrosion layers in relation to their stratification, 145
- Stress distribution  
determination of the oxidation stress distribution in a duplex oxide-metallic substrate system by a curvature method, 213
- Subscales  
diffusional growth of multiphase scales and subscales on binary alloys: a review, 35
- Sulphate  
hot corrosion of Co-Cr-Al-Y by molten sulfate-vanadate deposits, 353
- Sulphidation  
deposit-induced sulphidation of fluidized-bed combustor heat exchangers, 227  
elaboration of silicide and aluminide coatings by chemical vapour deposition or hot dipping: oxidation and sulphidation resistance of these coatings, 29  
oxidation-sulfidation of an Fe-25Cr-10Al alloy in H<sub>2</sub>-H<sub>2</sub>O-H<sub>2</sub>S gas mixtures, 125  
oxidation-sulfidation behavior of nickel-base superalloys and M-Cr-Al coatings, 99  
sulphidation behaviour of  $\beta$ -NiAl- $\alpha$ -Cr pseudo-binary alloys, 183  
sulphidation of iron: the effect of surface reaction and defect mobility in FeS on the kinetics of iron sulphidation, 347  
sulphidation properties of chromium and chromium-containing alloys at high temperatures, 51  
the sulphidation properties of pre-oxidized yttrium-ion-implanted Incoloy 800H, 157
- Sulphur  
austenitic stainless steels in a corrosive atmosphere containing sulphur with a low O<sub>2</sub> potential and containing carbon, behaviour in creep, 233  
behaviour of metallic materials containing aluminium in an atmosphere containing sulphur and a little oxygen, 219  
the breakaway corrosion of Fe-Cr alloys in atmospheres containing sulfur and oxygen, 237  
the interaction of carbon and sulfur with iron-base alloys in predominantly carburizing environments, 113  
various aspects of high temperature corrosion in aggressive atmospheres containing sulphur, oxygen or both, 11
- Sulphur dioxide  
high temperature corrosion of nickel and dilute nickel-based alloys in (SO<sub>2</sub>-O<sub>2</sub>) SO<sub>3</sub> mixtures, 45
- Sulphurization  
sulfurization and carburization of the steel AISI 304H by hot gases in full catalytic units, 151
- Sulphurizing  
behaviour of the alloy Fe-2,25Cr-1Mo in oxidizing and/or sulfurizing atmospheres, 175
- Sulphur trioxide  
high temperature corrosion of nickel and dilute nickel-based alloys in (SO<sub>2</sub>-O<sub>2</sub>) SO<sub>3</sub> mixtures, 45
- Superalloys  
cobalt-based superalloys for applications in gas turbines, 11  
effect of creep or low cycle fatigue on the oxidation or hot corrosion behaviour of nickel-base superalloys, 199  
high temperature erosion of coated superalloys for gas turbines, 273  
oxidation-sulfidation behavior of nickel-base superalloys and M-Cr-Al coatings, 99  
the influence of hafnium in the substrate on the oxidation resistance of aluminide coatings on nickel-based superalloys, 111  
20 years of practical experience on the behaviour of superalloys to corrosion and their protection in hot components of industrial gas turbines, 331
- Surface alloys  
elaboration of surface alloys under laser irradiation, 127
- Surface degradation  
thin layer activation: a technique for monitoring material loss during high temperature degradation processes, 143



## Surface reaction

sulphidation of iron: the effect of surface reaction and defect mobility in FeS on the kinetics of iron sulphidation, 347

## SUS-316 stainless steel

simultaneous oxidation and tellurization of SUS-316 stainless steel for fast breeder reactor fuel cladding, 211

## Tantalum

study of the oxidation at 850 °C of the alloy Ni-Co-Cr-Al-Y-Ta cast and sprayed by a low pressure plasma spraying process, 89

## Tellurization

simultaneous oxidation and tellurization of SUS-316 stainless steel for fast breeder reactor fuel cladding, 211

## Thermal barrier coatings

survivability of thermal barrier coatings, 69

## Thermal cycling

application of the acoustic emission technique for the detection of oxide scale cracking during thermal cycling, 289

behaviour of  $\text{Al}_2\text{O}_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205

## Thermomechanical diagrams

thermomechanical diagrams: some applications to the study of high temperature corrosion, 303

## Thin layer activation

thin layer activation: a technique for monitoring material loss during high temperature surface degradation processes, 143

## Titanium

behaviour of  $\text{Al}_2\text{O}_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205

effects of aluminium and silicon on the oxidation resistance of 13Cr-Ti ferritic stainless steel, 137

## Transition temperature

ductile-to-brittle transition temperature behaviour of platinum-modified coatings, 227

## Turbine blades

performance of high temperature coatings on F100 turbine blades under simulated service conditions, 361

## Vacuum plasma spraying (VPS)

equipment performance and coating quality in modern vacuum plasma spraying (VPS), 349

## Vanadate

hot corrosion of Co-Cr-Al-Y by molten sulfate-vanadate deposits, 353

## Vanadium

behaviour of  $\text{Al}_2\text{O}_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205

## Vanadium oxide

corrosion of nickel by  $\text{V}_2\text{O}_5$ : critical phenomenon due to  $\text{O}_2$  pressure, 379

## Vapour-deposited

corrosion protection by vapour-deposited and laser-fused  $\text{SiO}_2$  coatings, 135

## Vapour-deposited silicon oxide coatings

the effectiveness of vapour-deposited  $\text{SiO}_2$  coatings in preventing carburization of Incoloy 800H, 37

## Water

oxidation-sulfidation of an Fe-25Cr-10Al alloy in  $\text{H}_2$ - $\text{H}_2\text{O}$ - $\text{H}_2\text{S}$  gas mixtures, 125

## Wear

resistance to wear and to the corrosion in liquid sodium of aluminised coatings on austenitic stainless steels, 287

## Wet helium

corrosion behaviour of Incoloy 800 and Nimonic 75 in prototype nuclear process helium and in wet helium under special flow conditions, 189

## Yttrium

hot corrosion of Co-Cr-Al-Y by molten sulfate-vanadate deposits, 353

mechanisms of scale-metal adhesion on M-Cr-Al-Y alloys, 348

microstructure of oxide scales formed on cyclically oxidized M-Cr-Al-Y coatings, 97

some comments on the role of yttrium in protective oxide scale adherence, 261

study of the oxidation at 850 °C of the alloy Ni-Co-Cr-Al-Y-Ta cast and sprayed by a low pressure plasma spraying process, 89

the influence of implanted yttrium on the oxidation behaviour of  $\beta$ -NiAl, 281

## Yttrium-ion-implanted Incoloy 800H

the sulphidation properties of pre-oxidized yttrium-ion-implanted Incoloy 800H, 157

## Zirconium

behaviour of  $\text{Al}_2\text{O}_3$  scales on Fe-Al and Fe-Ni-Al alloys with small additions of Ti, Zr, Nb and V on thermal cycling and creep in oxidizing and carburizing atmospheres, 205

## Zirconium alloys

simulation of oxidation phenomena during high temperature transients: application to zirconium alloys in steam, 73